TWO MITES OF THE GENUS CHEYLOSTIGMAEUS, INCLUDING A NEW SPECIES FROM POINT BARROW, ALASKA

(Acarina: Stigmaeidae)

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Stigmaeid mites currently assigned to the genus *Cheylostigmaeus* Willmann are distinguishable from those of allied genera by a combination of characters, the most obvious of which is the configuration of the two principal dorsal plates. Females of the six described species are, with one exception (*C. longisetosus* Willmann), so very much alike that Willmann (1951, 1952) found it necessary to separate species on the basis of characters exhibited by the mouthparts of males. This is unfortunate for routine identifications, since specimens of this group are more frequently encountered as casual females. A synoptic diagnosis of the genus and a key to the males of known species are given by Willmann (1952). None of these have been reported heretofore from America.

This paper is concerned with two species of this genus. One of these is found in western parts of the United States. It is provisionally identified here as *C. pannonicus* Willmann. The other is a new species taken in Alaska by Dr. P. D. Hurd under the auspices of an Arctic Institute of North America grant (Project O.N.R.–173) entitled: Analysis of Soil Invertebrate Samples from Barrow, Alaska.

CHEYLOSTIGMAEUS PANNONICUS WILLMANN

(Plate 1, figures 1–4)

Cheylostigmaeus pannonicus Willmann, 1951, Sitzungsb. Osterr. Akad. Wissensch., Mathem.—naturw. Kl., Abt. I, 160 (1–2):137.

Female.—Chelicerae prominent, with tapered fixed digits ensheathing stylets almost to tips. Rostrum conical, not longer than palpfemur, its lateral margins without noteworthy adornments or lamellae. Two pairs of whip-like setae occur on venter of gnathosoma; one pair (28μ) on basis capituli, one pair (44μ) on rostrum proper; alveoli of shorter, posterior pair slightly farther apart than those of anterior pair. Palp segments noticeably sclerotized but without unusual spines or apophyses; each palptibia armed with a robust terminal claw and a short bicuspidate accessory claw adjoining base of terminal claw. Palptarsus cylindrical, pendant, about as long as larger claw; equipped with seven bristles or sensilla, as follows: one long apical trident, five setiform bristles, and one basal claviform sensillum.

Idiosoma provided with two extensive plates which together almost cover its entire dorsal but not latero-pleural surfaces (fig. 4). Anterior plate covering propodosoma bears four pairs of setae, of which pre-ocular pair is the longest. Posterior plate covering hysterosoma bears six pairs of setae, all fairly uniform in type, but hindermost pair is longer than pair next in front and approximately as long as pre-oculars of propodosoma. Two pairs of terminal setae borne on separate caudal plate which is not confluent with genital plate below; median setae slightly longer than laterals of terminal group. Dorsal plates show areas of surface texture in some specimens only as coarse dimples or closely-set pits—these not generally apparent over entire surface or on every specimen. Body setae and some of those on appendages stiff, straight or slightly curved, tapered to pointed tips; each seta embedded in a thick hyaline matrix which forms a bluntly rounded sheath over the tip of the seta proper. Sclerites of venter restricted to small areas of articulation with coxal groups; these sclerites not confluent in mid-line. Six setae situated on sclerites of venter, one pair between anterior coxal groups, two pairs between posterior groups (coxae III–IV). Ano-genital plate rounded in front, narrowed posteriorly to anal elevation, with three pairs subequal genital setae. Anus subterminal; anal covers with three pairs of setae, hindmost pair slightly longer and more robust than those in front. Genu I with three acicular setae and one lateral spiniform sensillum (by analogy with other raphignathoids) as long as seta next adjacent (fig. 3) Tibia I with five setae plus two special sensilla—postero-dorsal sensillum curved near outer tip and about one-half as long as nearest seta; latero-distal sensillum very short (12μ), claviform. Tarsus I with 13 acicular bristles plus one moderately long sensillum (33μ) situated midway between dorsal setae of successive whorls. Spiniform sensillum of genu II reduced to tiny spur (10μ); latero-distal sensillum of tibia II absent; dorsal claviform sensillum of tarsus II somewhat smaller than on tarsus I. Genua III and IV each with single acicular seta. Sensilla of tibia III and IV as on tibia II; claviform sensillum of tarsi gradually reduced in size on successive legs; on tarsus IV this structure is diminutive (9μ). Measurements averaged for six specimens partly compressed in Hoyer's fluid: idiosoma—465μ; idiosoma plus rostrum—560μ; pre-ocular seta—95μ; post-ocular setae—69μ; posteriormost setae on hysterosomal plate—90μ; setae next in front —79μ.

Male.—Secondary sex differences apparent in reduced size of idiosoma, thickening of maxillicoxal areas and palpi, terminal location of ano-genital apparatus and accessory sensillum on each tarsus. Margins of rostrum flared to form a pair of sclerotized, leaf-like, anteriorly directed lamellae (fig. 1); each lamella incised in front to appear bicuspidate when viewed from above. A pair of rostral setae insert on these lamellae, one seta on each lamella,

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Explanation of Plate 1

Cheylostigmaeus pannonicus: Fig. 1, venter of rostrum, male; Fig. 2, tarsus I, left leg of male; Fig. 3, distal segments of right leg I, female; Fig. 4, dorsal aspect of female. Uppermost millimeter scale applicable to figures 1–3.

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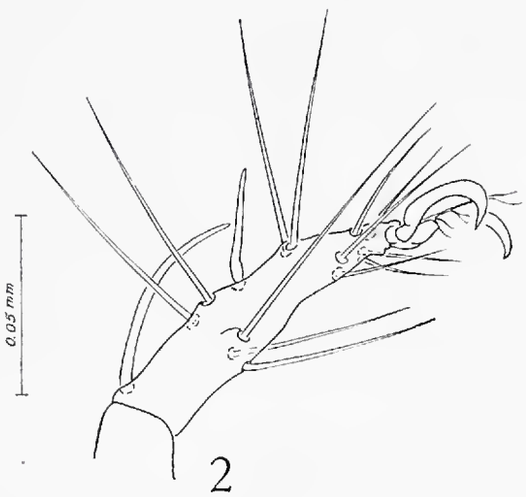

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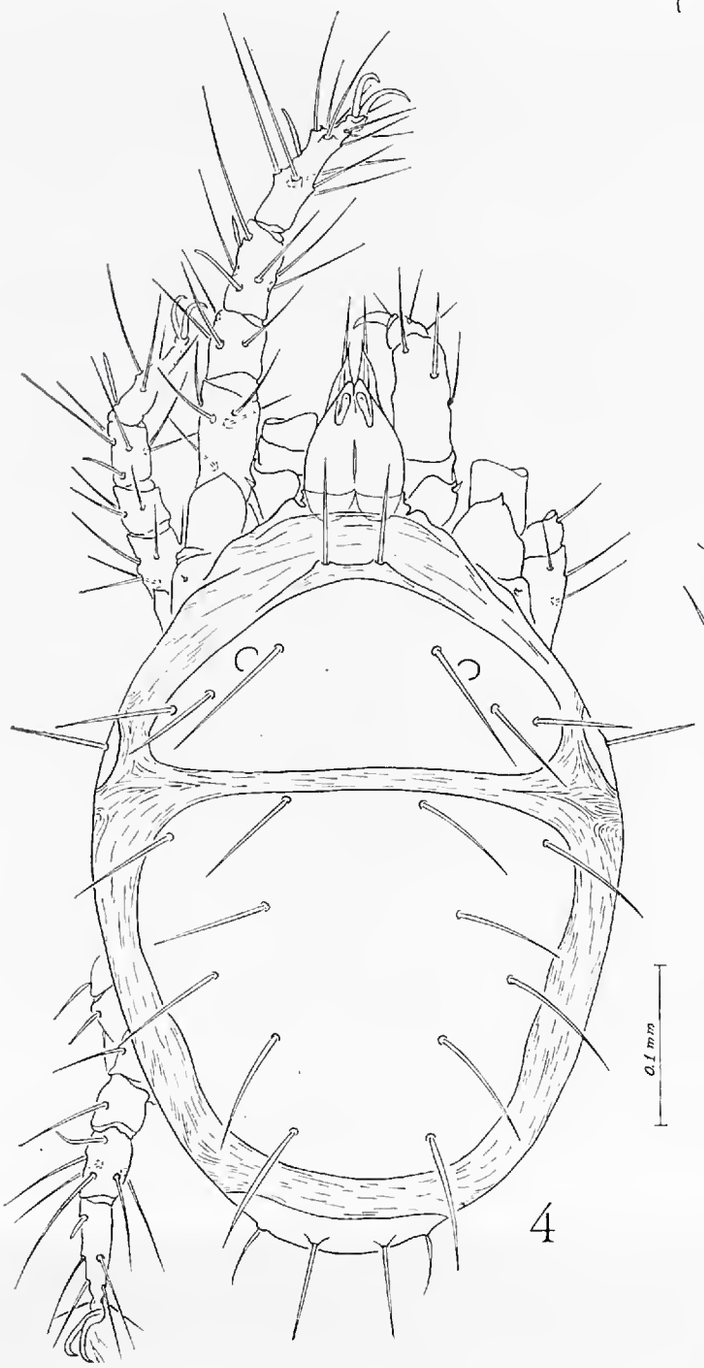

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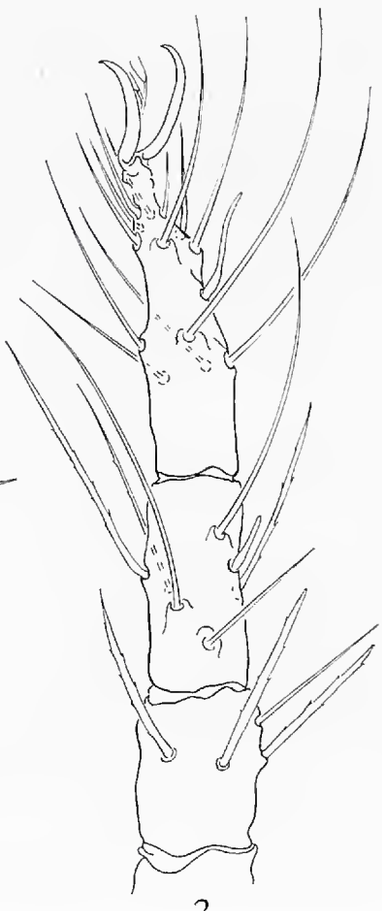

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close behind incision. Palpal segments robust, without apophyses or other noteworthy emarginations. A minute sensory peg on upper aspect of each maxillicoxa, spine-like, on conspicuous pedicel. Idiosoma sagittate in outline, with anus terminal. Anal covers with three pairs of setae, two pairs of which are diminutive. Only two pairs of genital setae on venter of opisthosoma. Chaetotaxy of appendages identical between sexes except that male has an additional clavate sensillum at base of each tarsus I–IV; this special sensillum (*solénidion mâle*, Grandjean, 1944) repeated with slight reduction in length on successive tarsi; its total length (64μ) on tarus I slightly greater than distance between its own alveolus and alveolus of shorter clavate organ on mid-portion of segment (fig. 2). Measurements averaged for two specimens: idiosoma—343μ; idiosoma plus rostrum—465μ; pre-ocular setae—83μ; post-ocular setae—46μ; posteriormost setae on hystero-somal plate—65μ; setae next in front—46μ.

Collection Data. Male and females, MURRAY, UTAH, Oct. 6, 1949 (G. F. Knowlton and Shih-Chun Ma), *ex* piles of celery waste. Male and females, HUGHSON, CALIFORNIA, Mar. 31, 1948 (F. M. Summers), *ex* leaf trash in peach orchard.

Willmann (1951) has already indicated that the bicuspidate appearance of the rostral lamallae is diagnostic for *C. pannonicus*. The mites herein identified as *pannonicus* agree with Willmann's synoptic description in this respect. However, there may be a discrepance in that the rostrum of males from Austria is said to project forward to the base of the palptibia whereas the rostral tip of the American males does not protude beyond the distal end of the palpfemur.

The structure and disposition of the heterogeneous bristles of the appendages are taxonomic characters of supplemental value for distinguishing genera and, sometimes, species within the super-family Raphignathoidea. The term "sensillum" is used advisedly in reference to several of the peculiar bristles which do not have the typical acicular or whip-like form. These may be regarded as structurally modified setae; but others or all of the acicular variety are undoubtedly sensory in function.

Cheylostigmaeus torulus Summers, new species

(Plate 2, figures 5–9)

Male.—Inflated basal joints of chelicerae ornamented dorsally with a pair of minute, knob-like processes, one on the mid-dorsal portion of each

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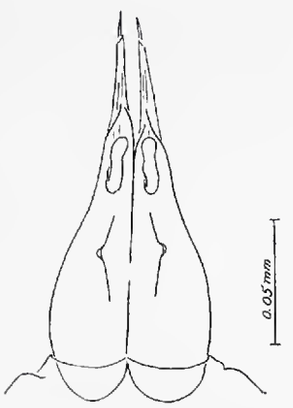
EXPLANATION OF PLATE 2

Cheylostigmaeus torulus: Fig. 5, chelicerae, male, dorsal; Fig. 6, inner face of right palpus, male; Fig. 7, venter of rostrum, male; Fig. 8, ventral opisthosoma, male; Fig. 9, dorsal view of male. Millimeter scale of figure 5 applicable also to figure 8; scale of figure 7 applies also to figure 6.



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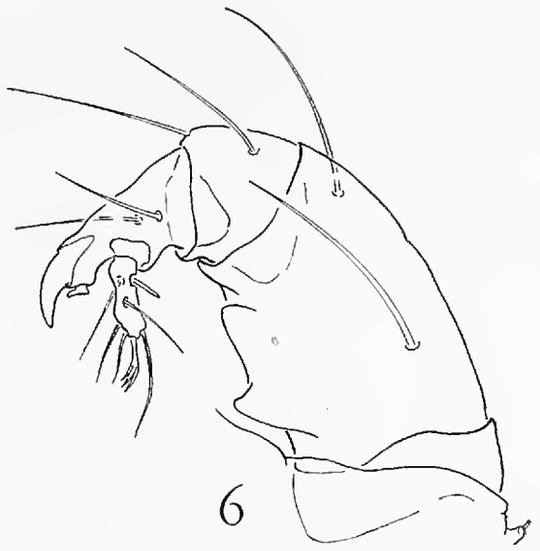

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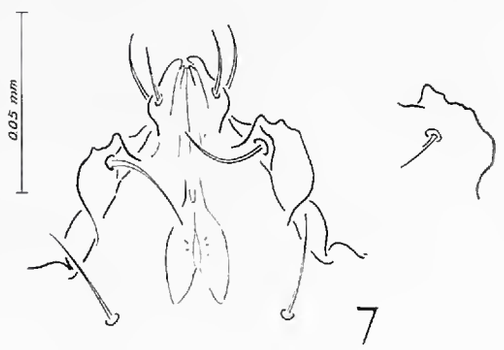

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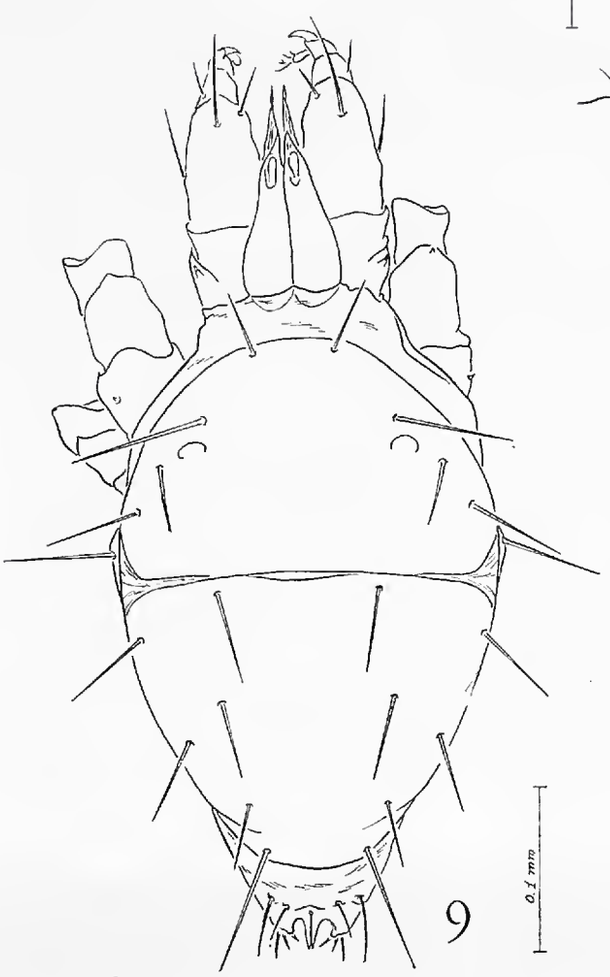

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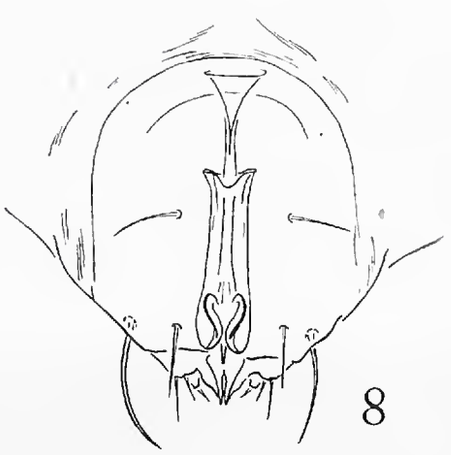

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chelicera (fig. 5). Rostrum with a pair of leaf-like lamellae, each lamella incised in front to appear bicuspidate (holotype) or with several additional minor cusps on outer border (fig. 7). Posterior pair of rostral setae arise on these lamellae. Mesal surface of each palpfemur heavily sclerotized, provided with two blunt apophyses; posteriormost apophysis conical; anterior apophysis a less elevated, more rounded swelling (fig. 6). Dorsal setae of idiosoma moderately fine, straight, faintly plumose, without hyaline envelope or sheath (setae of female show this delicate sheath); setae of pre-ocular pair and most posterior pair of hysterosomal plate approximately equal in length and conspicuously longer than others of dorsum; each of these approximately twice as long as setae of pairs next nearest. Sclerites of genitalia not known to have features of diagnostic value. Special clavate sensillum *(solénidion)* peculiar to tarsi of males (35μ) about one-half as long as the distance between its own alveolus and the alveolus of the comparable structure located dorsally between the two sets of long tarsal bristles: this male tarsal organ repeated with slight reduction in length on successive tarsi. Measurements, averaged for three specimens: idiosoma —382μ: idiosoma plus rostrum—505μj pre-ocular setae—80μ; post-ocular setae—41μ: posteriormost setae on hysterosomal plate—74μ: setae next in front—39μ.

Holotype male, Point Barrow, Alaska, July 26, 1953 (P. D. Hurd), *ex* moss substrate over peat with scattered *Carex, Poa, Petasites*, and lichens.

Paratypes. One male, Point Barrow, Alaska, July 8, 1953; two males. August 1, 1953 (P. D. Hurd), *ex* same substrate as type.

Holotype deposited in U.S. National Museum, No. 2445. One paratype male and several females deposited with the holotype; others retained in author's collection.

The presence of a pair of small, knob-like processes on the dorsal aspect of the chelicerae of males is unique for the species. The rostral lamellae resemble those of *C. pannonicus*, whereas the occurrence of apophyses on the inner face of the palpfemur is characteristic of *C. grandiceps*.

Females of the series from Point Barrow are presumed to be of the same species as the males described as *C. torulus*. The writer is unable to distinguish between these and the females herein identified as *C. pannonicus*.

C. torulus may be conspecific with *Liostigmaeus pulchellus* Thor, 1930. Several of the specimens in the Point Barrow collection were first identified as belonging in *Liostigmaeus* because they appeared to be distinctive in body form, as illustrated by Thor. Later, however, critical study revealed that these specimens

are simply undistorted (not compressed) mounts of *C. torulus*. This suspected synonymy cannot be further clarified until males of the Norwegian species are found. It is advisable, therefore, to describe the Alaskan mite as a new species and to include it in Willmann's definable genus.

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A RECORD OF STANLEYA AS A FOOD PLANT OF PIERIS BECKERI

(Lepidoptera: Pieridae)

The article in a recent issue of the Pan-Pacific Entomologist (XXXIII:156, 1957) by Jerry A. Powell, recording the occurrence of larvae of *Pieris beckeri* on *Stanleya*, caused the present writer to remember a specimen of *Pieris beckeri* that came to him in a roundabout way.

A plant of *Stanleya* had been brought to San Jose State College from the Mohave Desert, and put on display as a plant specimen in a beaker of water. It was found that a larva was feeding on this plant. The larva was brought to me but by that time had pupated. The pupa produced a fine normal female *Pieris beckeri* on June 2, 1952. The plant had been collected on the Mohave Desert on May 12, 1952.

This additional record would indicate that *Stanleya* is probably a regular food plant of *Pieris beckeri*.—J. W. TILDEN. *San Jose State College, San Jose, California.*